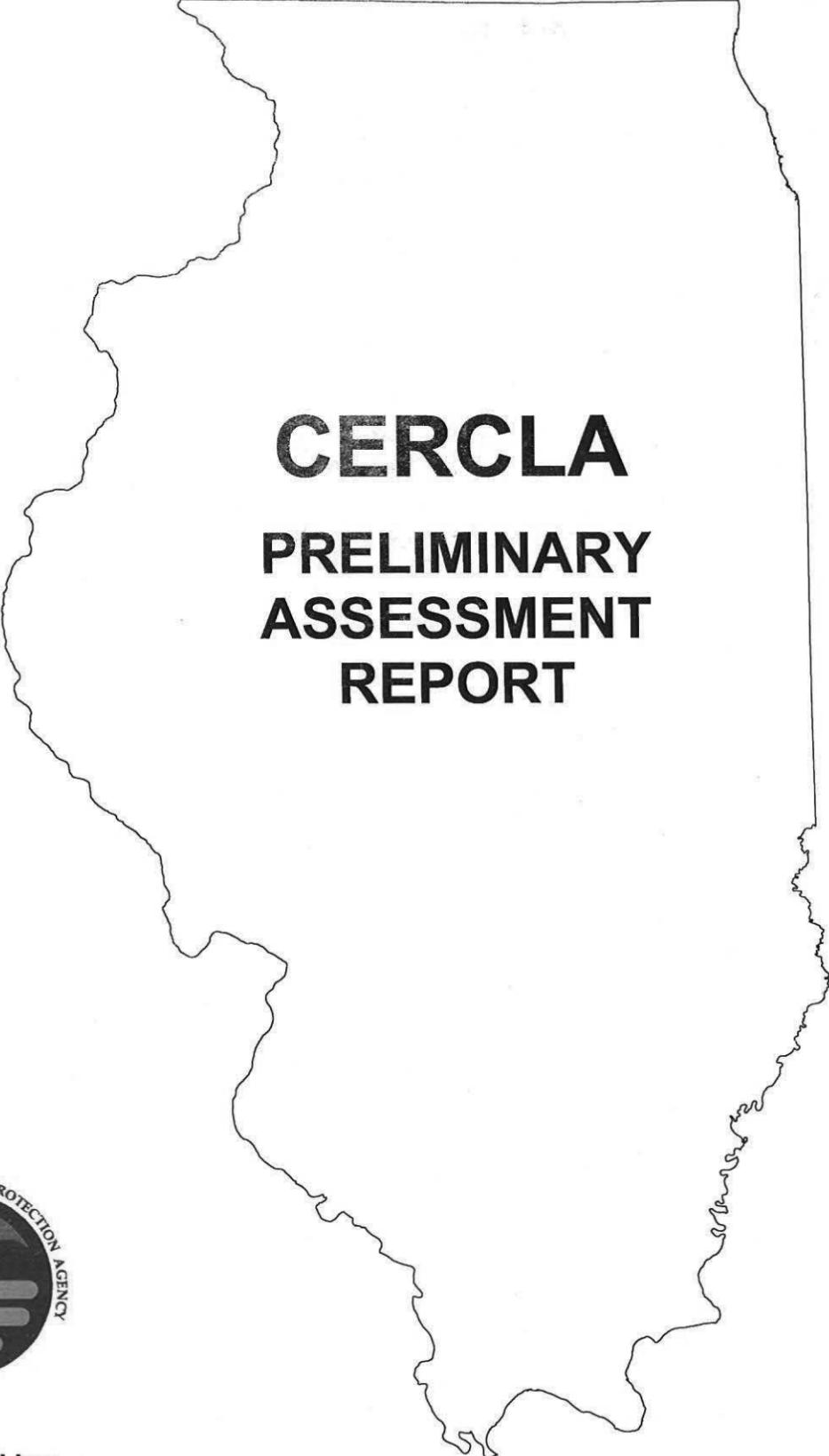


LPC 1631210008--St. Clair County
Sauget / Lewin Metals Div
(aka. Cerro Flow Product LLC)
ILP 00510791
SF/HRS



**CERCLA
PRELIMINARY
ASSESSMENT
REPORT**

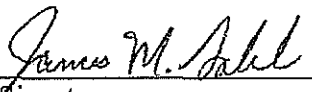


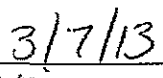
Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

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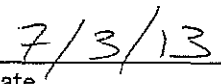
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Date

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Agency, Region 5


Signature


Date

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are required to document this information release.*

PRELIMINARY ASSESSMENT REPORT

for:

**LEWIN METALS DIV
SAUGET, ILLINOIS
ILP 00510791**

PREPARED BY:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION

JUNE 12, 2013

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SECTION 1.0 INTRODUCTION

On February 22, 2012, the Illinois Environmental Protection Agency's (Illinois EPA's) Office of Site Evaluation (OSE) was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Preliminary Assessment (PA) at the Lewin Metals Division (LMD) site in Sauget, St. Clair County, Illinois. The LMD site is historically documented as existing at the northeast corner of the intersection of Mississippi Avenue and Queeny Avenue in Sauget, Illinois (38.59274, -90.17236) (Figure – 1). The physical address for the former LMD site is 3000 Mississippi Avenue, Sauget, IL. The property is currently occupied by an active industrial facility known as Cerro Flow Products Inc. (Cerro) formerly known as Cerro Copper. Information contained on historic maps and in industrial directories suggests that former industrial activities at this location may have included the use or smelting of lead.

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300) requires that a PA be performed on all sites entered into the Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS), U.S. EPA's inventory of hazardous waste sites.

A PA is an early step in the Superfund process that utilizes a limited-scope investigation and collects readily available information. The PA distinguishes between sites that pose little or no threat to human health and the environment and those that require further investigation. The PA also supports emergency response and removal activities, fulfills public information needs, and generally furnishes appropriate information about the site early in the assessment process.

If the findings of the PA determine that further investigation is warranted, the site will continue to progress through the Superfund evaluation process and receive a Site Inspection. The Site Inspection will provide necessary information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL) or should be archived and receive a No Further Remedial Action Planned (NFRAP) qualifier. At any time throughout the Superfund

evaluation process, the site may be assigned NFRAP status, be referred to another state or federal clean-up program, or recommended for another action. The PA is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund.

SECTION 2.0 SITE BACKGROUND

Section 2.1 Site Description

Historic information indicates that the Lewin Metals Corporation was located at the corner of Mississippi Avenue and Queeny Avenue in Sauget, Illinois (Figure-1). Sauget is located in St. Clair County and lies within Illinois Congressional District 12. This location is currently occupied by an active facility known as Cerro Flow Products Inc. formerly Cerro Copper Products. Cerro Flow Products has a listed address as 3000 Mississippi Avenue, Sauget, Illinois 62206. The entrance to the Cerro Flow Products facility is located off of Mississippi Avenue and has a latitude and longitude of 38.59274 / -90.17236. Cerro Flow Products currently is a manufacturer of copper tubing for the plumbing, HVAC, refrigeration and industrial markets. Cerro Flow Products is listed as a large quantity hazardous waste generator.

Lewin Metals is referenced in the 1940-1964 Standard Metals Directory under a variety of categories including scrap iron and metals dealers, metal smelters (lead, iron, brass, copper, zinc, and battery), metal refiners, and babbitt and solder manufactures (Standard Metal Directory, 1940, 1948, 1963-1964). The Lewin Metals facility is identified at the location provided above in a 1905-1950 East St. Louis Sanborn Fire Insurance Map (ISL website) (Figure – 2). Various process areas identified on the Sanborn map include a lead foundry area, metal storage areas, a lead and tin melting pot area, and a brass furnace area.

Figure-3 is a 1940 aerial photograph of the subject property. Figure-4 is a 2005 aerial photograph of the subject property which shows the current property configuration. The property configuration in the 1940 aerial photo appears to match the features identified on the

Sanborn Fire Insurance map (Figure-2). Figure-3 is believed to represent the configuration of the Lewin Metals Corporation at the time of operation. Based on this information, the Lewin Metals property roughly encompassed 37 acres. Queeny Avenue was moved to the south in 1949 or 1950 expanding the property. The current Cerro Flow Products property encompasses roughly 63 acres. The old location of Queeny Avenue is apparent on the 2005 aerial photo and is currently used as access road for Cerro Flow Products operations. The subject property is bounded by Queeny Avenue to the south, Mississippi Avenue to the west, Falling Springs Road to the east, and active railroad tracks to the north. Currently, access to the property is restricted to the main entrance off of Mississippi Avenue by a perimeter fence. Signage on the fence indicates the property boundaries are monitored by video surveillance.

Property use in the area is predominantly industrial / commercial and has been heavily industrialized for over a century. Property use west of Mississippi Avenue to the Mississippi River is entirely industrial / commercial or open ground currently undeveloped. Nearby industrial facilities include a large chemical manufacturer (W.G. Krummrich Plant; a.k.a. Monsanto, Solutia, Pharmacia) directly north of the subject property, a zinc roast and processing plant (American Zinc, Cyprus Amax, Big River Zinc), a petroleum additive manufacturer (Ethyl Petroleum Additives, Edwin Cooper, Afton Chemical Corp.), a rubber recycler (Midwest Rubber) and an ethanol processing plant (Center Ethenol) to the west, and a foundry (Sterling Steel Castings) and petroleum refinery and tank farm (Mobil) to the east (GSI Environmental, November 2012). Other nearby industrial facilities included a coal bulk storage and transfer facility, waste recycler, chemical warfare manufacturer, barge terminal and fleeting company, petroleum bulk storage and transfer facility, wood treating facility, hazardous waste incinerator, and waste water treatment facilities. A small isolated residential area consisting of approximately 50 residences is located adjacent to the subject property to the east/southeast. Larger residential areas are present 0.32 miles to the south and 0.65 miles to the northeast.

Topographically the area is relatively flat and is located in the Mississippi River flood plain also known as the American Bottoms. The American Bottoms extend from the Mississippi River

bluffs east of the subject property to the Mississippi River. The American Bottoms slope gently to the south and west. Area drainage is controlled by natural and artificial drainage channels that eventually discharge to the Mississippi River approximately 0.8 miles west of the subject property. Surface water runoff from the subject property reportedly flows to a storm water system that leads to the American Bottoms Regional Treatment Facility located west of the property (GSI Environmental, November 2012). Prior to 1990, site runoff drained to an actively managed storm water conveyance channel known as Dead Creek. The northern section of Dead Creek crossed the eastern half of the subject property and flowed approximately 17,000 feet before discharging to the Prairie du Pont Creek (Figure-5). The Prairie du Pont Creek routes all water from Dead Creek to the Mississippi River. As will be discussed in later sections of this report, the segment of Dead Creek that crossed the subject property was remediated by Cerro Flow Products in 1990/1991. Approximately 27,500 tons of sediment were excavated and taken to Waste Management disposal facilities (GSI Environmental, November 2012).

Regionally, the American Bottoms are underlain by approximately 40 feet of unconsolidated valley fill known as the Cahokia Alluvium. The Cahokia Alluvium consists of fine grained silty sand with interbedded silts and clays. The Cahokia Alluvium is underlain by approximately 95 feet of medium to coarse sand and gravel known as the Henry Formation. Grain size tends to increase with depth. The Henry Formation is underlain by Mississippian and Pennsylvanian limestone and dolomite. Water bearing units are present within the Cahokia Alluvium and Henry Formation. The underlying bedrock units exhibit low permeabilities and are not considered to be a significant source of groundwater in the area. Three distinct water bearing units are reported to be present in the unconsolidated formations (GSI Environmental, November 2012). Groundwater flow directions are to the west and northwest. Groundwater from the American Bottoms aquifer has historically been used for industrial, cooling water, and agricultural purposes. Potable water supply for the area is obtained from a surface water intake located on the Mississippi River approximately 2.75 miles upriver from the subject property. Illinois EPA databases indicated private water supply wells have historically existed within four miles of the subject property; however, the Villages of Sauget and Cahokia currently have ordinances prohibiting the use of private wells.

Two Superfund sites proposed for NPL listing in 1996 (Sauget Area 1 and Sauget Area 2), are located near/on the subject property (Figure-6). Sauget Area 1 consists of three closed waste disposal areas (Sites G, H, and I), a closed construction debris disposal area (Site N), a backfilled impoundment (Site L), an active borrow pit (Site M) and 3.5 miles of Dead Creek, an actively managed storm water conveyance channel (U.S. EPA, Superfund Information Systems). Site I and Segment A of Dead Creek are located on the subject property. Contamination associated with Area 1 sites includes a variety of volatile and semi-volatile organic compounds, PCBs, and metals. Contamination present in Sites G, H, and I contributes to a large plume of contaminated groundwater which flows west toward the Mississippi River, and an area of residual dense non-aqueous phase liquids (DNAPLs) in groundwater. Some of the groundwater plume is captured by a groundwater migration control system which is part of the Sauget Area 2 site near the Mississippi River (Figure-6). Additional information regarding Sauget Area 1 is available at the U.S. EPA websites: <http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0500753> and <http://www.epa.gov/region5/superfund/npl/illinois/ILD980792006.html>.

Sauget Area 2 encompasses an area of approximately 312 acres and consists of four sludge dewatering lagoons (Site O) and four landfills/industrial waste disposal areas (Sites P, Q, R, and S) (U.S. EPA, NPL Site Narrative for Sauget Area 2)(Figure-6). Area 2 includes a groundwater migration control system located adjacent to the Mississippi River. The migration control system consists of a 3,300 foot long, fully penetrating, barrier wall, and three groundwater extraction wells. The migration control system captures some of the groundwater contamination associated with Sauget Area 1. Sampling conducted at Sauget Area 2 sites revealed elevated concentrations of benzene, PCBs, 4,4'-DDE, phenol and lead. Additional information regarding Sauget Area 2 is available at U.S. EPA websites: <http://cfpub.epa.gov/supercpad/cursites/csitinfo.cfm?id=0500047> and <http://www.epa.gov/superfund/sites/npl/nar1655.htm>.

Section 2.2 Site History

A scrap iron and metals dealer known as the L.J. Cohen Company was founded in 1908. The company's founder died in 1918 and his partner William Lewin and brother Tannie Lewin renamed the company Lewin Metals. The company then experimented with electrolysis to make purer grades of copper. In 1927, Lewin Metals built its own electrolytic refinery in Sauget, IL. Based on information obtained from the St. Clair County Recorder's Office, the Lewin Metals Corporation was established in St. Clair County on October 18, 1933. A second company, the Lewin-Mathes Company was also established on the same date. Historic information suggests Lewin Metals merged with the G. Mathes Company to form the Lewin-Mathes Company in 1931. In the 1940s, Lewin-Mathes made projectiles, tube for cargo and combat ships and other war products to support World War II war efforts. The Lewin Metals Corporation is referenced in Standard Metal Directories under a variety of categories including scrap iron and metal dealers, metal smelters (lead, iron, brass, copper, zinc, and battery), metal refiners, and babbitt and solder manufactures. In 1957, Lewin-Mathes became part of Cerro de Pasco Corporation which financed construction of the present mill in Sauget. In 1975, Cerro Copper Products became part of The Marmon Group of companies. In 2004, Cerro Copper consolidated its operating companies under the name of Cerro Flow Products LLC.

On February 22, 2012, the Illinois EPA's OSE was tasked by U.S. EPA Region V to conduct a Preliminary Assessment at the Lewin Metals Division site. The Lewin Metals Division site was identified in a list of former lead smelting sites within Illinois. Regulatory activities for the Sauget Area 1 & 2 sites date back to 1979. A detailed list of regulatory and cleanup activities for Sauget Area 1 & 2 can be found at U.S. EPA websites:

<http://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.CleanupActs&id=0500753>, and

<http://cfpub.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.CleanupActs&id=0500047>.

Segment A of Dead Creek and Site I of the Sauget Area 1 Superfund site are/were located on the subject property. Segment A was remediated by Cerro Flow Products in 1990/1991. Remediation consisted of the removal of approximately 27,500 tons of contaminated sediments that were taken to Waste Management disposal facilities (GSI Environmental, November 2012). This portion of the subject property was backfilled to grade and is no longer part of the Dead Creek drainage channel. Site I and associated contamination are being addressed under an Administrative Order by Consent issued by the U.S. EPA.

Section 2.3 Regulatory Status

Cerro Flow Products is currently listed as a Resource Conservation and Recovery Act (RCRA) large quantity hazardous waste generator. Based upon available file information the LMD site does not appear to currently be subject to RCRA corrective action. Cerro Flow Products has historically maintained a Title V air permit which is currently pending renewal. Wastewater from the Cerro Flow Products site has permitted discharge to the American Bottoms Regional Treatment Facility. Any current onsite waste disposal activities would be subject to RCRA. Information currently available does not indicate that the subject property is under the authority of the Atomic Energy Act (AEA), Uranium Mine Tailings Action (UMTRCA), or Federal Insecticide Fungicide or Rodenticide Act (FIFRA).

The Sauget Area 1 site (Figure – 6) was proposed for the NPL in the late 1990s but was never officially listed. In 1999, USEPA issued a Unilateral Administrative Order (UAO) to Potential Responsible Parties (PRPs) to replace culverts on Dead Creek to eliminate potential risks associated with flooding and to eliminate associated adverse ecological impacts. In 2000 and 2001, the UAO was modified to address contamination in Dead Creek. All remediation activities for Dead Creek were complete by 2008. Also in 1999, USEPA and Monsanto/Solutia entered into an Administrative Order on Consent (AOC) to conduct an Engineering Evaluation/Cost Analysis (EE/CA) for the Sauget Area 1 source areas (Sites I, H, G, L, M and N) and impacted portions of Area 1 (Dead Creek and possibly adjacent properties). The 1999 AOC also required

the respondents to conduct a Remedial Investigation and Feasibility Study (RI/FS) for Sauget Area 1 groundwater. RI/FS documents were approved in October 2012. Portions of Dead Creek (Segment A) and source area Site I are located on the subject property. Table-1 is a general site timeline for the Sauget Area 1 site taken from the November 6, 2012 RI/FS prepared by GSI Environmental (GSI Environmental, November 2012).

The Sauget Area 2 site (Figure – 6) was also proposed for the NPL in the late 1990s. In 2000, USEPA and the Sauget Area 2 PRP Group (some 40 parties) entered into an AOC for the Sauget Area 2 Sites (Sites O, P, Q, R and S). The AOC required the respondents to conduct an RI/FS. The RI/FS was approved by USEPA in May, 2013. In 2002, USEPA issued a UAO to the Sauget Area 2 PRP Group to design, construct and implement an Interim Groundwater Remedy. The UAO resulted in the creation of the Groundwater Migration Control System (GMCS) which consisted of a barrier wall and three extraction wells near the Mississippi River. The GMCS was installed to prevent discharge of contaminated groundwater from Sites O, R, and upgradient sources (including the subject property) to the Mississippi River.

SECTION 3.0 FIELD INSPECTION ACTIVITIES

Section 3.1 Field Inspection

A field inspection of the subject property and surrounding area was conducted on August 2, 2012. The field inspection was performed from the perimeter of the site because prior site access had not been obtained. Access to the property is restricted to the main entrance by a perimeter fence. The main entrance and perimeter is monitored by Cerro Flow Products security. As discussed in previous sections of the report, the property is located in an urban location where industrial activity has prevailed for over a century. A description of the property and surrounding area can be found in Section 2.1 of this report. As part of the field inspection, an X-Ray Fluorescence (XRF) instrument was used to analyze near surface materials around the perimeter of the subject property for total metals. A total of 27 readings were collected from 12

locations located in the public right of way to the south, southeast and east of the subject property (Figure-7). XRF readings were collected from materials directly beneath the sod where present, and at various depths no greater than one foot below the ground surface. XRF readings were taken to determine if former Lewin Metals operations may have impacted nearby off-site locations.

Section 3.2 Analytical Data

Table-2 contains the XRF readings collected during the field inspection. East St. Louis has elevated lead concentrations throughout due to the long history of industrial activity in the area. Lead, copper and zinc are contaminants that have been associated with Dead Creek and source areas for Sauget Area 1. Median values from the XRF readings were used as background values (lead 186 ppm, copper 319 ppm, and zinc 973 ppm). Only one value of 616 ppm lead would meet observed release criteria. Three readings were above the U.S. EPA residential Removal Management Level (RML) of 400 ppm. None of the lead concentrations observed were found to exceed the mean soil lead level of 936 ppm identified in the 1999 and 2000 Illinois Department of Public Health (IDPH) Preliminary Assessment of Uncontrolled Lead Releases in the Mississippi River Gateway Initiative Area discussed in the following section. Nine readings were found to meet observed release criteria for copper. None of the copper readings exceeded the residential RML. No zinc readings were found to meet observed release criteria or exceed the residential RML.

Section 3.3 Past Environmental Investigations

Past environmental investigations are known to have occurred both on and off the subject property since Sauget Area 1 site discovery in 1980 (Table-1). Investigations on the subject property appear to have been limited to Site I and Dead Creek Segment A. Subsurface soil and waste samples from Site I contained VOCs, SVOCs, pesticides, PCBs, and various metals

(copper, lead, nickel, and zinc). Waste material contained in Site I are a continuing source of groundwater contamination. DNAPLs are pooled on bedrock beneath Site I. Groundwater contaminants from Sauget Area 1 include VOCs and SVOCs primarily. Downgradient wells also contain PCBs, pesticides and metals. Soil and sediment samples from Dead Creek contained VOCs, SVOCs, metals, and PCBs. Surface water samples from Dead Creek contained elevated concentrations of VOCs, SVOCs, pesticides, PCBs and metals. Dead Creek contaminated sediments have been remediated.

In 1999 and 2000, the Illinois Department of Public Health (IDPH) with assistance from the U.S. EPA collected soil samples in a residential area located approximately 0.75 miles northeast of the subject property as part of a Preliminary Assessment of Uncontrolled Lead Releases in the Mississippi River Gateway Initiative Area. Thirty-seven (37) current and former industrial sites suspected to have used lead or produced lead were identified by IDPH within the residential area (Figure-8). Soil samples were collected and analyzed for lead around the 37 sites in two phases. A total of 160 surface samples (0-1 inch) and 7 deep samples (0-6 inches) were collected during the first phase (Figure-9). Sixty-nine (69) soil samples exceeded the U.S. EPA residential action guideline of 400 ppm at 24 industrial sites. A total of 336 soil samples were collected from 28 sites during the second sampling phase (Figure-10). The mean soil lead level was 936 ppm lead with a range of 60 ppm to 33,782 ppm. U.S. EPA conducted soil removal activities at various industrial sites; however, information regarding the removal activities was not available.

SECTION 4.0 PATHWAY DISCUSSIONS

The CERCLA Program's Hazardous Ranking System identifies three migration pathways and one exposure pathway, by which hazardous substances may pose a threat to human health and/or the environment. Consequently, sites are evaluated on their known or potential impact to these pathways. The pathways evaluated are groundwater migration, surface water migration, soil exposure, and air migration.

Potential sources of contamination related to the subject property would include potential air emissions from the facility prior to permitting requirements, onsite deposition of slag or waste associated with industrial activities, and Sauget Area 1 Sites H and I where industrial and municipal wastes were disposed. Originally a sand and gravel pit, Sites H and I would be classified as a landfill which accepted industrial and municipal wastes from approximately 1931 to 1957. Industrial wastes include solvents, other organics and inorganics, including PCBs, para-nitroaniline, chlorine, phosphorus pentasulfide, and hydrofluosilic acid (GSI Environmental, November 2012). Site H occupies approximately 4.9 acres and contains an estimated waste volume of 110,000 cubic yards of material. Site I occupies approximately 14.7 acres and contains an estimated 250,000 cubic yards of material. Site I was divided into Site I North and Site I South due to the type of wastes identified in each section. Site I South contains similar wastes as Site H and occupies approximately 8.8 acres. Contaminants detected in Sites H and I include VOCs, SVOCs, pesticides, PCBs, and metals. TCLP analysis indicates materials are characteristically hazardous. Groundwater beneath Sites H and I are contaminated and DNAPLs are present at the bedrock interface. Site H is not fenced and access is unrestricted. The property is graded and grass covered with exposed slag at grade. Site I is part of the Cerro Flow Products property and access is restricted by a boundary fence. Site I is graded and covered with crushed stone and is used for equipment and truck parking. The source areas described above are considered parts of the Sauget Area 1 site and proposed corrective actions outlined in the RI/FS for Sites H and I include the installation of a RCRA Subtitle C cap.

Section 4.1 Groundwater

Groundwater use in the American Bottoms area has historically been obtained from unconsolidated sands and gravels overlying Mississippian and Pennsylvanian limestone and dolomite. The unconsolidated sands and gravels were used primarily for industrial and agricultural purposes. Currently it appears no groundwater near the subject property is being pumped from the unconsolidated materials for public or industrial purposes. Potable water

supply for Sauget and Cahokia is obtained from a surface water intake located on the Mississippi River. The surface water intake is located approximately 2.75 miles upriver from the subject property and the groundwater migration control system, and 6.75 miles upriver of the point where surface water from Dead Creek enters the Mississippi River. Illinois EPA databases indicated private water supply wells have historically existed within four miles of the subject property; however, the Villages of Sauget and Cahokia currently have ordinances prohibiting the use of private wells. Figure-11 identifies private wells, community water supply wells, non-community water supply wells, and surface water intakes located within the 4-mile target distance limit of the subject property based on Illinois EPA database information (Illinois EPA, Source Water Assessment Program). The City of St. Louis, MO obtains its drinking water supply from a surface water intake on the Mississippi River further upstream from the Sauget / Cahokia intake. The nearest downstream surface water intake on the Mississippi River is near Festus, MO which is outside the 15-mile target distance limit for the surface water pathway. Groundwater in the vicinity of the subject property is contaminated from a number of sources. Sources of contamination include upgradient sources and Sauget Area 1 Superfund site sources including Site H and I. DNAPLs associated with Site H and I are continuing sources of groundwater contamination. Groundwater flow directions are to the west / northwest towards the Mississippi River. Groundwater contaminant plumes are comingled down gradient from the subject property. In response to an October 2002 Administrative Order, potential responsible parties for the Sauget Area 2 Superfund site installed a groundwater migration control system to abate impacts to the Mississippi River from Sauget Area 1 and 2 Superfund sites, the southern portion of the W. G. Krummrich facility and other industries in the Sauget area. The groundwater migration control system consists of a 3,300 foot long “U” shaped barrier wall installed to bedrock and three upgradient extraction wells (Figure-6).

Since installation and use of potable water supply wells is prohibited by adopted groundwater use ordinances, and the active groundwater migration control system was designed to abate impacts to the Mississippi River from Sauget Area 1 Superfund site groundwater contamination, the groundwater migration pathway will not be evaluated for Hazardous Ranking System (HRS) purposes. Groundwater contamination generated from the subject property would be comingled

with upgradient sources and the Sauget Area 1 groundwater contamination plume and would be difficult to attribute solely to the subject property.

Section 4.2 Surface Water

Historically, surface water runoff, cooling water, industrial waste water, and drainage from Site I discharged to Dead Creek which bisected the subject property prior to 1990. During investigation of Sauget Area 1 in the 1980s, Dead Creek was divided into six segments: Creek Segments A thru F (Figure-5). Dead Creek traveled roughly 17,000 feet to the south / southwest through industrial, commercial, residential and agricultural properties before discharging to Prairie du Pont Creek at the Metro East Sanitary District lift station. Prairie du Pont Creek discharges to the Cahokia Chute of the Mississippi River. A wetland area classified as a palustrine forested wetland is located within Creek Segment F of Dead Creek. This wetland area is also known as Borrow Pit Lake.

Due to fluctuations of water levels and the location of culverts along Dead Creek, the majority of Dead Creek is classified as intermittent and is considered a portion of the overland flow component of the surface water pathway. The in-water segment of the surface water pathway begins at the wetland located in Creek Segment F. The in-water segment travels approximately 6.8 miles before reaching the Mississippi River. The remaining portion of the 15-mile target distance limit is the downstream section of the Mississippi River (Figure-12).

In 1990 / 1991, Cerro Flow Products removed approximately 22,000 cubic yards of contaminated creek sediments from Dead Creek Segment A. The contaminated sediments were taken to Waste Management facilities for disposal. The remaining creek channel in Segment A was lined and backfilled to grade with clean material. Currently, runoff from the manufacturing portion of the Cerro Flow Products property and the northern portion of the gravel truck lot north of the old Queeny Avenue generally flow to a combined sewer system that flows to the

American Bottoms/Sauget Wastewater Treatment Plants. Runoff from a small portion of the southern part of the gravel truck lot (Site I) flows to a storm water catch basin near the current Queeny Avenue location. The catch basin flows to the current head water section of Dead Creek which starts at Queeny Avenue.

Under a 1991 U.S. EPA Unilateral Administrative Order (UAO) and amendments, Solutia (Formerly W.G. Krummrich Plant, Monsanto, Pharmacia) remediated Dead Creek Segments B, C, D, E, and F by removing 46,000 cubic yards of sediments in 2001 / 2002, and 12,400 cubic yards of sediments and creek bottom soil in 2005 / 2006 (GSI Environmental, November 2012). Excavated sediments and soils were transferred to a RCRA and TSCA-compliant onsite containment cell constructed adjacent to the west bank of Creek Segment B. An armored impermeable liner and crushed stone were installed on Creek Segment B following removal of contaminated materials.

Two Ecological Risk Assessments (ERAs) were performed in 2001 and 2002 to address contamination associated with Dead Creek (GSI Environmental, November 2012). The 2001 ERA focused on floodplain soils, surface water, and sediments associated with Creek Segment F, Borrow Pit Lake, and floodplain soils associated with upstream segments of Dead Creek. Both terrestrial and aquatic receptors were evaluated in the 2001 ERA. Following sediment removal activities in 2001 / 2002, the 2002 ERA was performed to evaluate potential impacts to fish and aquatic wildlife. Risk based concentrations for the protection of forage fish in Dead Creek were developed for residual concentrations of contaminants in sediments. Approximately 12,400 cubic yards of creek bottom soils were removed from Dead Creek segments and Borrow Pit Lake to achieve the risk based cleanup levels.

Since remedial activities associated with the Saugut Area 1 Superfund project have addressed impacts from the subject property to Dead Creek, Borrow Pit Lake, and terrestrial and aquatic receptors, the surface water pathway will not be evaluated further.

Section 4.3 Soil Exposure

Near surface soil samples were collected and analyzed for total metals at twelve locations to the south and east / northeast of the subject property using an X-Ray Fluorescence (XRF) instrument (Figure-7). Sample locations were placed on city right of way property near the perimeter of the subject property to evaluate potential offsite impacts. XRF readings were collected from the surface if void of vegetation, directly below the sod layer, and at varying intervals less than one foot at most locations. Total metal concentrations from XRF analysis are included in Table-2. Only one value of 616 ppm lead would meet observed release criteria. Three readings were above the U.S. EPA residential Removal Management Level (RML) of 400 ppm. Nine readings were found to meet observed release criteria for copper. None of the copper readings exceeded the residential RML. No zinc readings were found to meet observed release criteria or exceed the residential RML. No residential properties are within 200 feet of the subject property. No schools or day care facilities are located within 200 feet of the subject property.

Soil contamination may exist on the subject property from past and current site operations. Historical information indicates that the mill foundation and low lying areas on the property were filled with slag from onsite operations during the 1930s and 1940s (PHR, 1999). According to Cerro Flow Products personnel, an average of 255 employees are present on the subject property on a daily basis.

Evaluation of the nearby population threat requires tabulating the number of people who live or attend school within a 1-mile travel distance of an area of observed contamination and who do not meet the criteria for resident individual. The following table is an estimate of the nearby population targets within 1-mile of the site.

POPULATION WITHIN ONE MILE

Distance (Miles)	Population
0 – 1/4	233
1/4 - 1/2	371
1/2 - 1	2,311

Section 4.4 Air Route

No air samples were collected near the subject property as part of this PA. Cerro Flow Products currently has a Title V air permit for discharges from the facility. Historical information indicates elevated lead concentrations exist in this area of East St. Louis as a result of heavy industrial activity and the use of lead based paints in residential areas. Therefore, attribution to former Lewin Metals lead smelting operations would be difficult to demonstrate. No additional information will be presented regarding the air migration exposure pathway.

SECTION 5.0 SUMMARY

Under the direction of U.S. EPA Region 5, the Illinois EPA performed a Preliminary Assessment of the former Lewin Metals Division property located at 3000 Mississippi Avenue in Sauget, Illinois, due to past lead smelting operations. This area of East St. Louis has been heavily industrialized for over a century. The Lewin Metals Corporation (a.k.a. Lewin-Mathes Company) constructed an electrolytic refinery at the East St. Louis location in 1927 to make purer grades of copper. The Lewin Metals Corporation has evolved into the current occupant Cerro Flow Products Inc. under a several different company names. Industrial activities at the subject property may have included scrap iron and metal dealing, metal smelting (lead, iron,

brass, copper, zinc, and battery), metal refining, babbitt and solder manufacturing, the manufacturing of projectiles and tubing for cargo and combat ships during World War II war efforts, and currently the manufacturing of copper tubing for the plumbing, HVAC, refrigeration and industrial markets.

Due to past industrial activities in the area, parts of two Superfund sites proposed for NPL listing are located in the immediate vicinity of the subject property. One waste disposal area and portions of a remediated water way known as Dead Creek are located on the subject property. Contaminated areas and associated groundwater contamination are currently being addressed by potential responsible parties. Various segments of Dead Creek have been remediated by potential responsible parties pursuant to various regulatory orders issued by U.S. EPA. Groundwater contamination exists in the unconsolidated materials near the subject property as a result of industrial activities located upgradient, down gradient and within the area of the subject property. A groundwater mitigation system has been installed by potential responsible parties near the Mississippi River to prevent contaminated groundwater from discharging to the river. Groundwater use ordinances in the area prohibit the installation of potable use water supply wells.

Near surface soil samples were collected and analyzed for total metals at twelve locations to the south and east / northeast of the subject property using an X-Ray Fluorescence (XRF) instrument as part of the Preliminary Assessment. Sample locations were placed on city right of way property near the perimeter of the subject property to evaluate potential offsite impacts. XRF readings were collected from the surface if void of vegetation, directly below the sod layer, and at varying intervals less than one foot at most locations. Only one value of 616 ppm lead met observed release criteria. Three readings were above the U.S. EPA residential Removal Management Level (RML) of 400 ppm. Nine readings were found to meet observed release criteria for copper. None of the copper readings exceeded the residential RML. No zinc readings were found to meet observed release criteria or exceed the residential RML. Historical information indicates elevated lead concentrations exist in this area of East St. Louis as a result of heavy industrial activity and the use of lead based paints in residential areas. No residential

properties are within 200 feet of the subject property. No schools or day care facilities are located within 200 feet of the subject property.

Historical information indicates that the mill foundation and low lying areas on the property were filled with slag from onsite operations during the 1930s and 1940s. No samples were collected from the subject property during the PA to assess potential impacts from onsite filling.

According to Cerro Flow Products personnel, an average of 255 employees are present on the subject property on a daily basis.

Cerro Flow Products currently has a Title V air permit for discharges from the facility. No air samples were collected near the subject property as part of this PA.

Section 6.0 References

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Illinois EPA, Bureau of Land File, LPC # 1630200005 Sauget Area 1 Site

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FIGURES

Figure -1
Lewin Metals Division
Site Location Map



1905 – 1950 East St. Louis Sanborn Fire Insurance Map

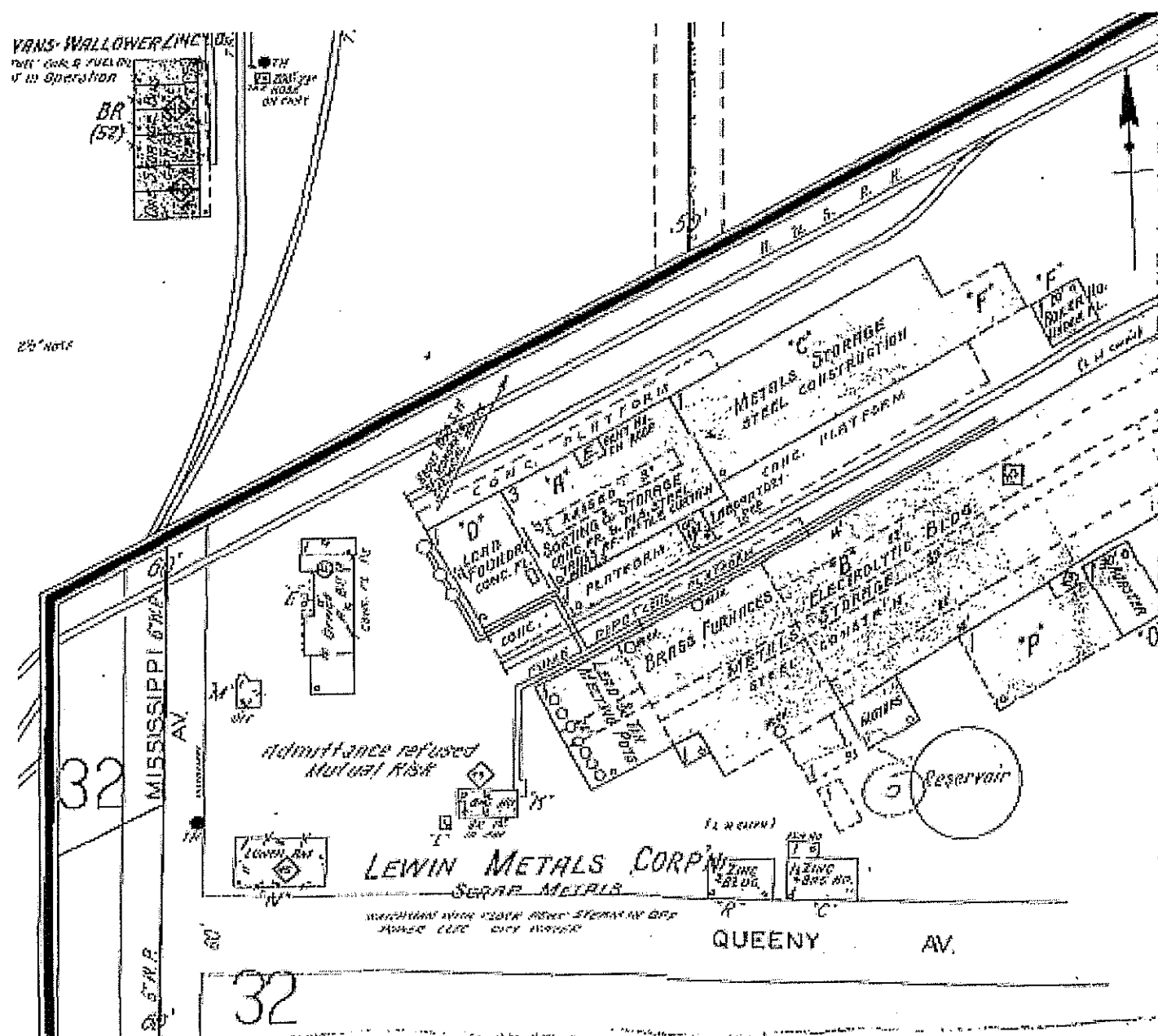


FIGURE - 3
1940 Aerial Photo
Lewin Metals

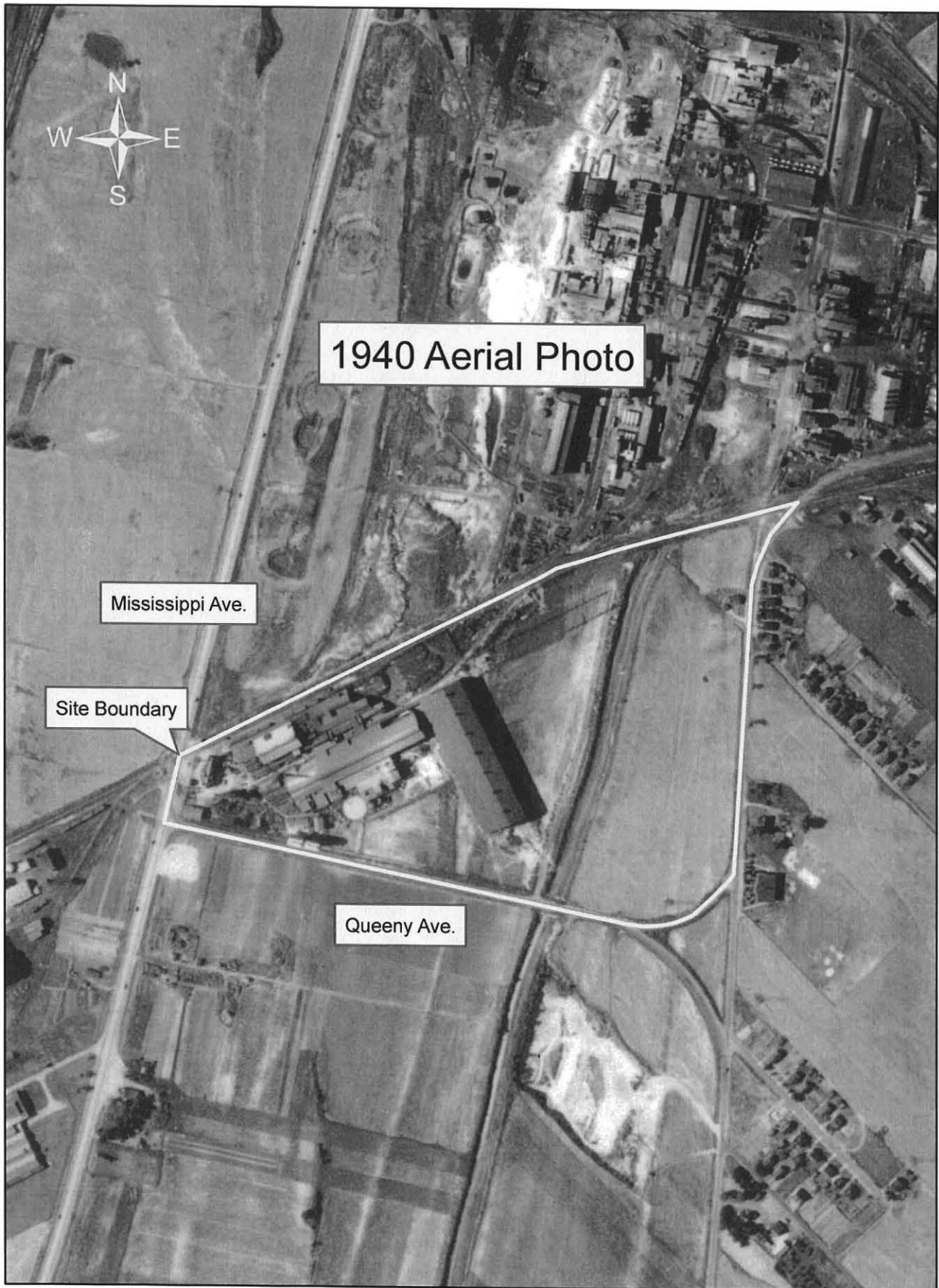


FIGURE - 4
2005 Aerial Photo
Lewin Metals

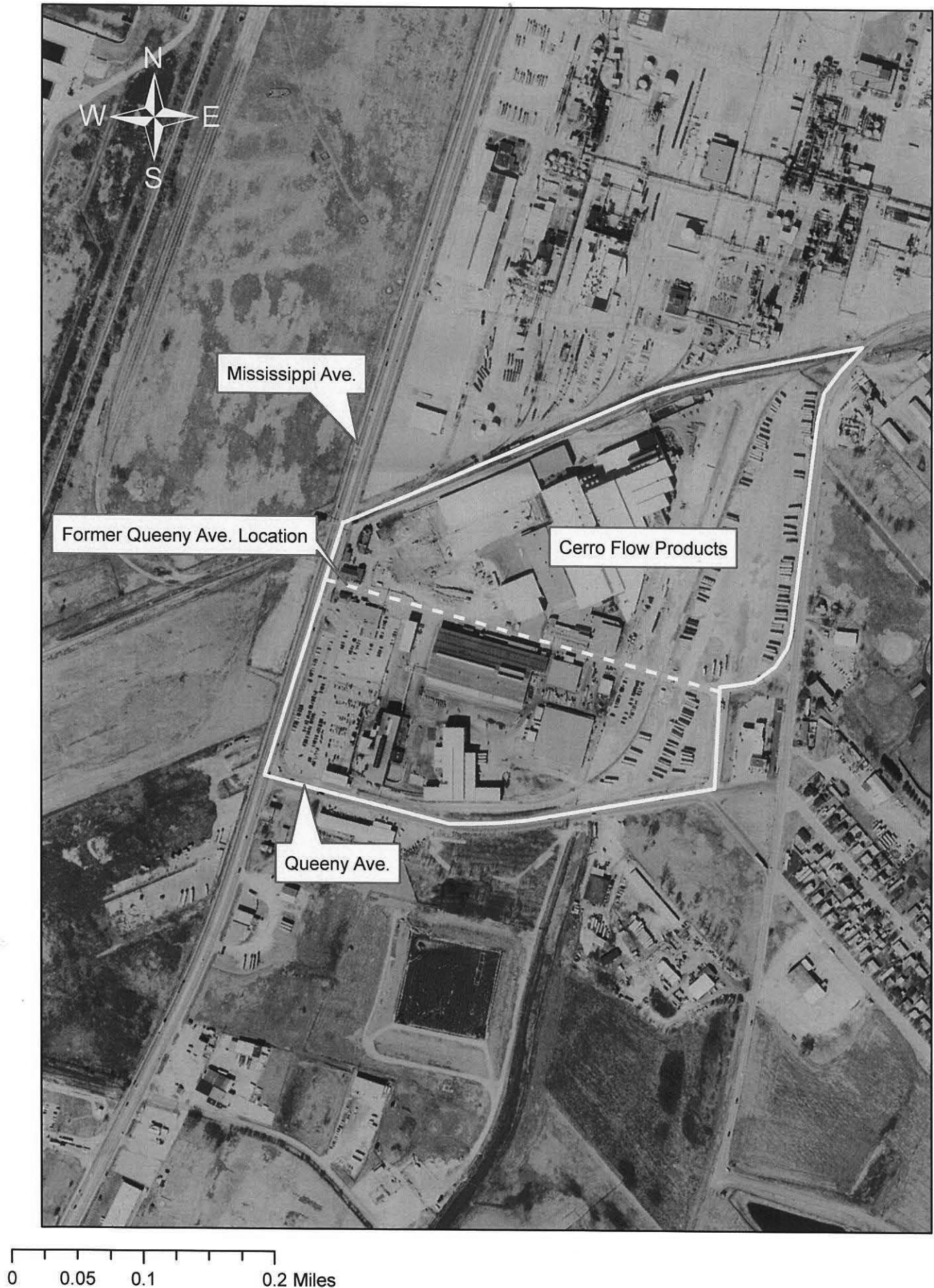


FIGURE – 5 SAUGET AREA 1 DEAD CREEK SITE MAP

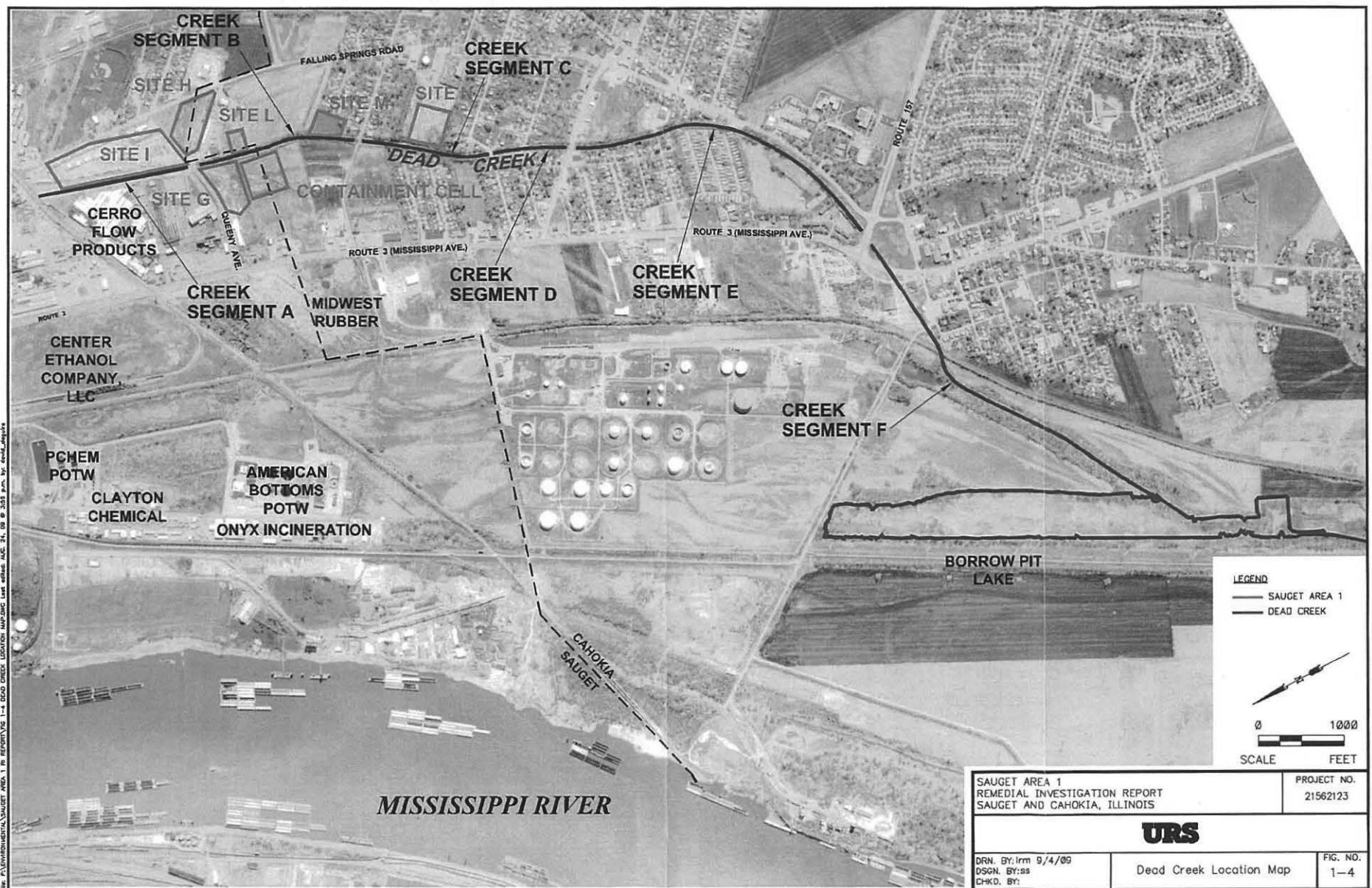


FIGURE - 6 SAUGET AREA 1 & 2 SITE MAP

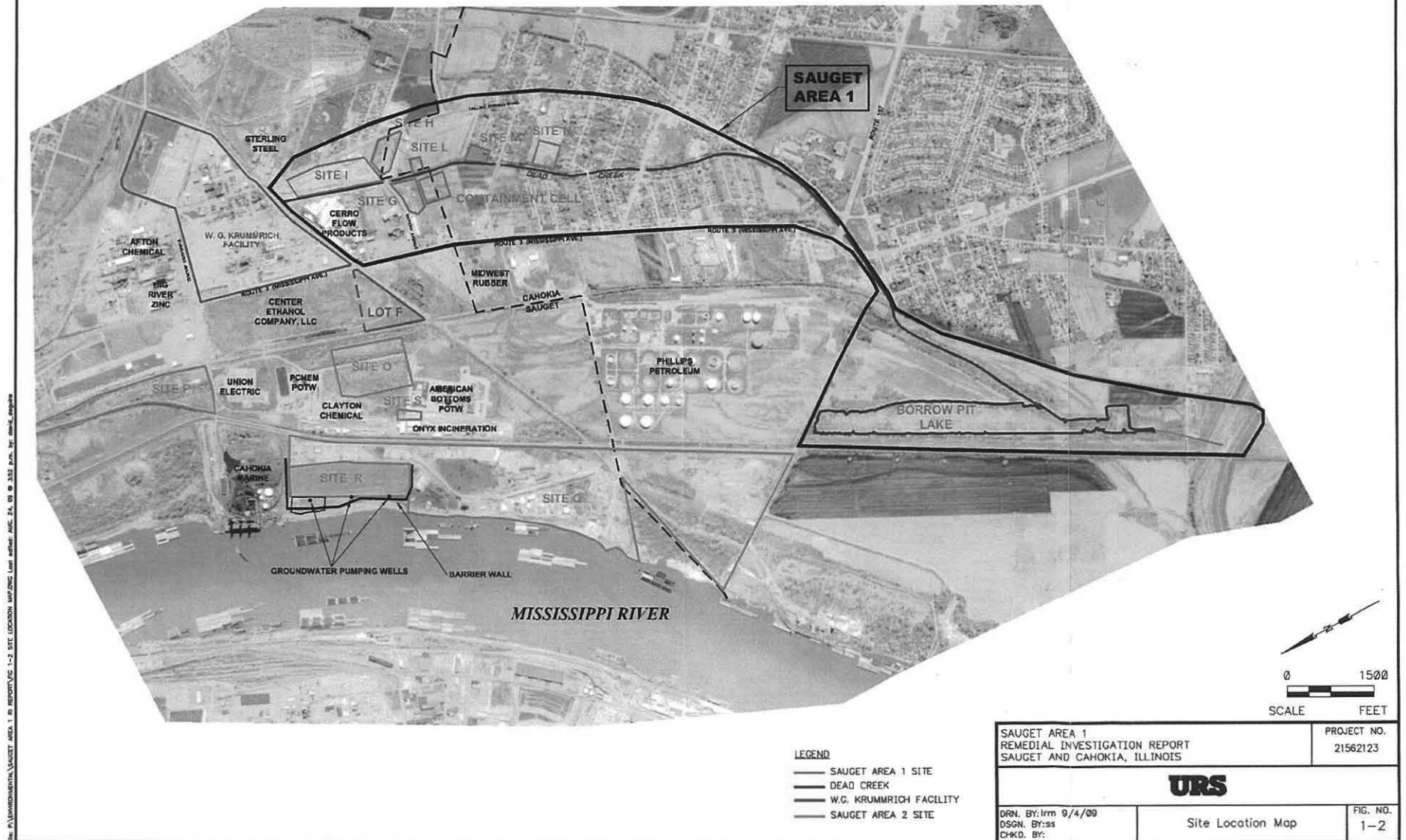
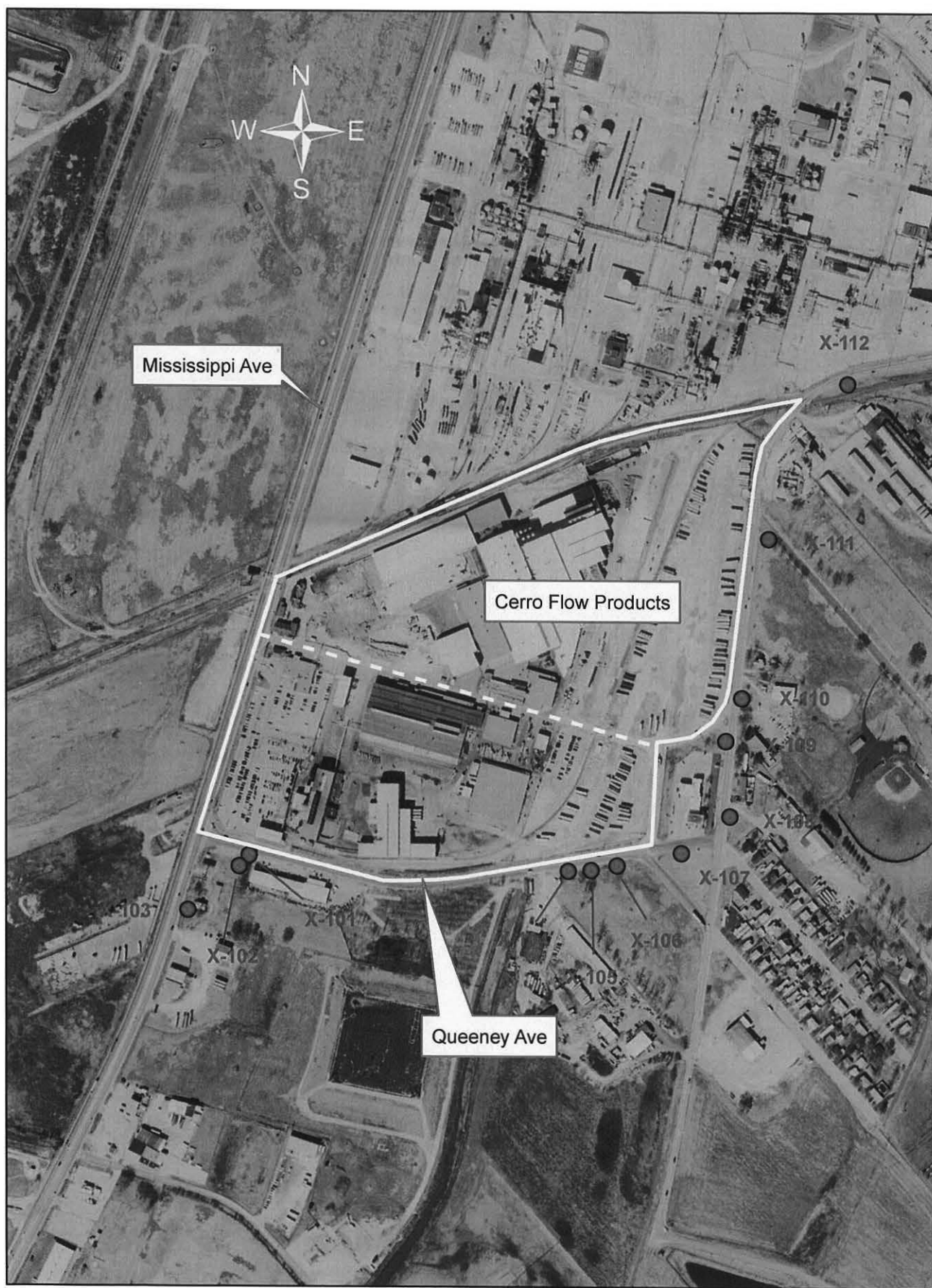


FIGURE - 7
Sample Location Map
Lewin Metals



0 250 500 1,000 Feet

● XRF Sample Location

Figure 8 - 1st Phase Industrial Locations



Figure 9 - 1st Phase Sample Locations

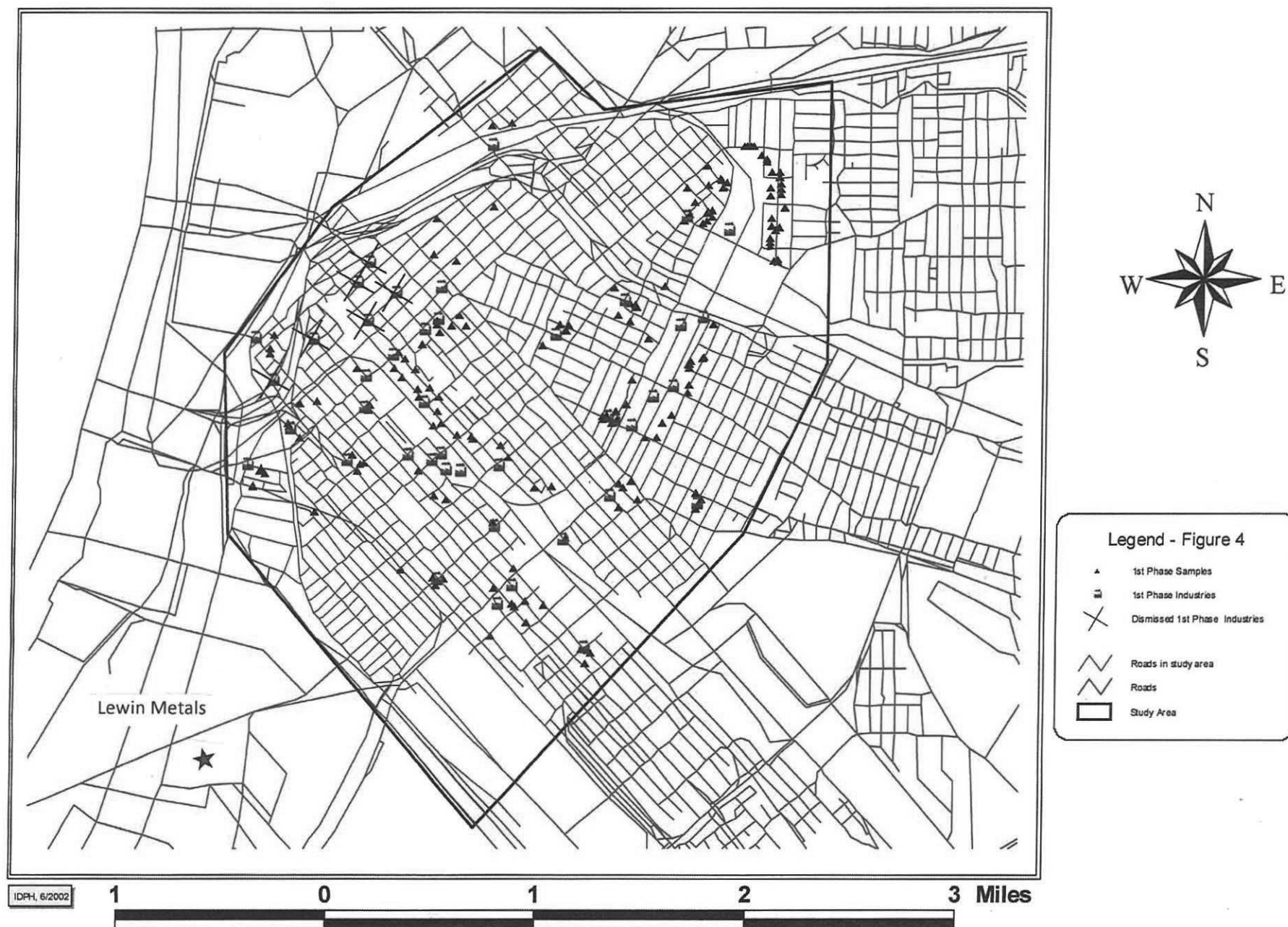
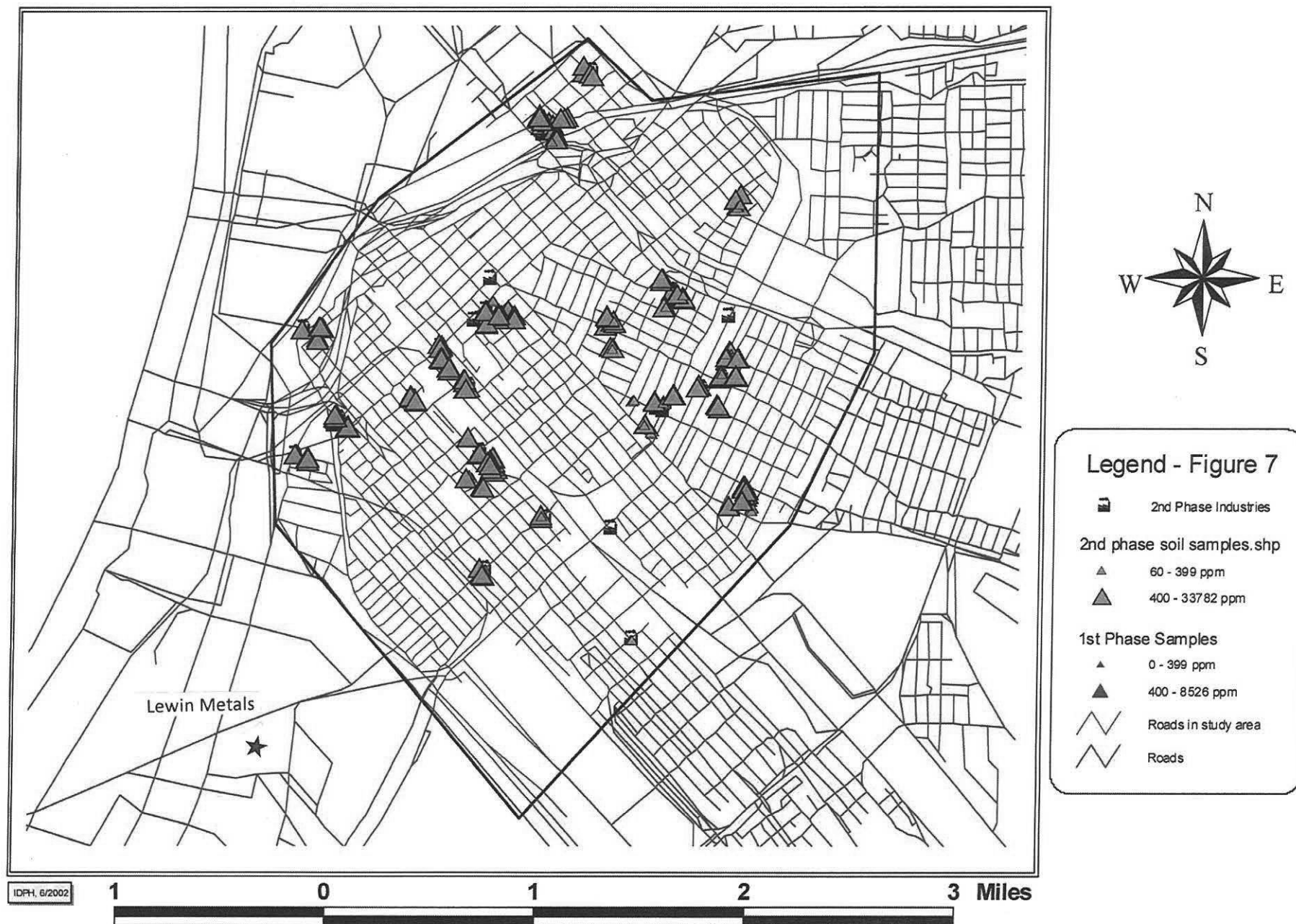


Figure 10- Phase 2 Sample Locations



TABLES

Table 1.
General Site Timeline

<i>Various Actions (1982 to 2001)</i>	<i>Date</i>
Fencing of Site G pursuant to a USEPA removal action	1982
Expanded Site Investigation (Ecology and Environment, 1988)	1988
Consent Decree for Dead Creek Segment A	5-Jul-1990
Dead Creek Segment A remedial action (Cerro, 1991)	1990-1991
Screening Site Inspection (SSI) of the Sauget Area 1 sites conducted by IEPA	Sept-1992
Site G removal action, which included soil sampling, solidification of two oil pits, and placement of 18-30 inches of clean soil cover (USEPA, 1995)	1995
Report with summary maps and tables from 1988 investigation (Ecology and Environment, 1998)	1998
AOC for EE/CA (sediment, soil, source areas) and RI/FS (groundwater)	21-Jan-1999
Proposed NPL listing (Federal Register Notice). USEPA had first attempted to list the Sauget Area 1 sites in 1996.	13-Sept-2001
<i>Dead Creek, Site M, Borrow Pit, Lake, Biota, Floodplain Soils (1999 to 2008)</i>	
UAO for Dead Creek removal action (culvert replacement) to address flooding concerns	21-Jun-1999
Multi-media sampling for EE/CA & RI/FS, which included sampling of surface water, sediment, biota, floodplain soils, fill area soils, groundwater, and air.	1999-2000
Culvert replacement at Cargill Road and Terminal Railroad Embankment	1999-2000
UAO modification to add sediment removal for Dead Creek Segments B, C, D, and E	31-May-2000
Installation of sediment dewatering system	Nov-2000
Construction of Judith Lane containment cell	2001

Table 1
General Site Timeline

UAO amendment to add sediment removal for Dead Creek Segment F including Borrow Pit Lake to address ecological risk	29-Aug-2001
Removal of sediment from Dead Creek Segments B, C, D, E, and F and Site M. Backfilling of Site M.	2001-2002
Post-sediment removal creek bottom soil sampling in Creek Segments B, C, D, E, and F.	2001-2002
Sediment sampling in Borrow Pit Lake to characterize extent of mercury concentrations greater than the RBC.	May-2003
Removal of creek bottom soils exceeding RBCs from Dead Creek Segments B, D, and F. Removal of soils exceeding soil-to-groundwater leaching criteria from Segment E. Confirmation soil sampling following soil removal.	2005-2006
Removal of sediment from grid cells in Borrow Pit Lake where concentrations of mercury exceeded the RBC. Post-sediment removal sampling from excavation areas to demonstrate that residual concentrations of mercury were less than the RBC.	2006
Installation of armored liner in Dead Creek Segment B	2007-2008
Fill Areas, Groundwater, Air (1999-2008)	
Multi-media sampling for EE/CA & RI/FS, which included sampling of surface water, sediment, biota, floodplain soils, fill area soils, groundwater, and air.	1999-2000
EE/CA and RI/FS report submitted in Mar-2001 (Solutia), Revision 1, Jun-2001 (Solutia), and Revision 2, Sept-2001 (US Army Corps of Engineers)	2001
Construction and startup of Sauget Area 2 Groundwater Migration Control System	2003
Investigations of Sites H, I, L, N (Tetra Tech, 2003a, b, c)	2002-2003
DNAPL characterization & remediation study at Sites G, H, I, and L (GSI, 2006)	2004-2005
Sampling at Site G of waste materials uncovered at two discrete locations during a geophysical survey (Golder, 2004)	Jun-2004

Table 1.
General Site Timeline

"Mass Flux Estimates" report (GSI, 2005)	Nov-2005
Groundwater sampling for Regional Groundwater Model (URS, 2006)	2005-2006
Soil vapor investigation (Golder, 2007)	2006
Utility corridor investigation (Golder Associates, 2008)	2007
Dead Creek soil to groundwater leaching investigation (Golder Associates, 2007)	2007
DNAPL recovery study at well BR-1 at Site I (GSI, 2008)	2007-2008
Regional Groundwater Modeling Report (GSI, 2008)	Apr-2008
Human Health Risk Assessments	
Site-wide HHRA for Sites G, H, I, L, and N and the residential transects (ENSR, 2001)	2001
Creek bottom soil HHRA (ENSR, 2006)	2006
Vapor intrusion HHRA (ENSR, 2008a)	2008
Utility corridor HHRA (ENSR, 2008b)	2008
Baseline Ecological Risk Assessments	
Ecological risk assessment for Sauget Area 1 (Menzie-Cura, 2001)	2001
Ecological risk assessment for creek bottom soil (Menzie-Cura, 2002)	2002
Ecological risk assessment addendum, including update of terrestrial screening	2009

TABLE - 2
XRF DATA TABLE
Lewin Metals 8/2/2012

Sample Location	Date	Reading	Se	Rb	Sr	Zr	Mo	Ag	Sn	Sb	Ba
Calibration	2-Aug-12	1									
X-101 (Surface)	2-Aug-12	2	<LOD	25	181	117	<LOD	<LOD	147	<LOD	541
X-102 (Surface)	2-Aug-12	3	<LOD	53	185	202	<LOD	<LOD	159	<LOD	<LOD
X-103 (Below Sod)	2-Aug-12	4	<LOD	43	149	185	<LOD	<LOD	140	<LOD	<LOD
X-103 (5-in)	2-Aug-12	5	<LOD	66	155	267	<LOD	<LOD	<LOD	<LOD	<LOD
X-103 (7-in)	2-Aug-12	6	<LOD	<LOD	<LOD	74	<LOD	<LOD	<LOD	<LOD	<LOD
X-104 (Below Sod)	2-Aug-12	7	<LOD	20	240	94	16	<LOD	<LOD	<LOD	<LOD
X-104 (5-in)	2-Aug-12	8	<LOD	42	232	95	<LOD	<LOD	172	<LOD	<LOD
X-105 (Below Sod)	2-Aug-12	9	<LOD	33	166	111	<LOD	<LOD	<LOD	<LOD	<LOD
X-105 (3-in)	2-Aug-12	10	<LOD	31	176	97	<LOD	<LOD	<LOD	<LOD	<LOD
X-105 (4-5 in)	2-Aug-12	11	<LOD	32	167	122	<LOD	<LOD	182	<LOD	<LOD
X-106 (Below Sod)	2-Aug-12	12	<LOD	28	188	101	19	<LOD	<LOD	<LOD	<LOD
X-106 (3-in)	2-Aug-12	13	<LOD	53	182	230	<LOD	<LOD	134	<LOD	<LOD
X-106 (4-in)	2-Aug-12	14	<LOD	44	198	130	<LOD	<LOD	171	<LOD	<LOD
X-107 (Below Sod)	2-Aug-12	15	<LOD	21	97	76	17	<LOD	129	<LOD	<LOD
X-107 (3-in)	2-Aug-12	16	<LOD	50	141	147	<LOD	<LOD	135	<LOD	<LOD
X-108 (Below Sod)	2-Aug-12	17	<LOD	54	178	223	<LOD	<LOD	<LOD	<LOD	<LOD
X-108 (4-in)	2-Aug-12	18	<LOD	59	164	238	<LOD	<LOD	197	<LOD	<LOD
X-109 (Below Sod)	2-Aug-12	19	<LOD	21	158	94	<LOD	<LOD	<LOD	<LOD	<LOD
X-109 (3-in)	2-Aug-12	20	<LOD	38	194	145	<LOD	<LOD	183	<LOD	<LOD
X-109 (4-in)	2-Aug-12	21	<LOD	26	151	154	21	<LOD	<LOD	<LOD	<LOD
X-110 (Below Sod)	2-Aug-12	22	<LOD	38	141	142	<LOD	<LOD	149	<LOD	<LOD
X-110 (4-in)	2-Aug-12	23	<LOD	56	136	264	<LOD	<LOD	<LOD	<LOD	<LOD
X-111 (Below Sod)	2-Aug-12	24	<LOD	40	102	158	<LOD	<LOD	171	<LOD	<LOD
X-111 (3-in)	2-Aug-12	25	<LOD	64	151	159	15	<LOD	145	<LOD	<LOD
X-112 (Below Sod)	2-Aug-12	26	<LOD	43	136	138	16	<LOD	<LOD	<LOD	<LOD
X-112 (3-in)	2-Aug-12	27	<LOD	48	178	148	<LOD	<LOD	175	<LOD	<LOD
X-112 (6-in)	2-Aug-12	28	<LOD	42	166	167	<LOD	<LOD	<LOD	<LOD	<LOD

< LOD - Less than Level of Detection
 Bold - Significantly Above Background
 Outlined - Above Removal Management Level

TABLE - 2
XRF DATA TABLE
Lewin Metals 8/2/2012

Sample Location	Date	Reading	Pb	Cu	Zn	As	Cd	Cr	Hg	Mn	Ni	Fe	LE	Ti	Co
Calibration	2-Aug-12	1													
X-101 (Surface)	2-Aug-12	2	155	506	1396	<LOD	<LOD	<LOD	<LOD	279	<LOD	9033	<LOD	<LOD	247
X-102 (Surface)	2-Aug-12	3	77	288	248	<LOD	<LOD	<LOD	<LOD	204	<LOD	10387	<LOD	1287	<LOD
X-103 (Below Sod)	2-Aug-12	4	126	144	821	<LOD	<LOD	<LOD	<LOD	200	<LOD	10951	<LOD	<LOD	<LOD
X-103 (5-in)	2-Aug-12	5	208	166	639	<LOD	<LOD	<LOD	<LOD	267	<LOD	15239	<LOD	1641	391
X-103 (7-in)	2-Aug-12	6	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	1887	<LOD	<LOD	<LOD
X-104 (Below Sod)	2-Aug-12	7	95	246	439	<LOD	<LOD	<LOD	<LOD	1126	<LOD	16979	<LOD	<LOD	<LOD
X-104 (5-in)	2-Aug-12	8	186	1216	745	<LOD	<LOD	<LOD	<LOD	839	<LOD	20408	<LOD	<LOD	501
X-105 (Below Sod)	2-Aug-12	9	349	1884	1795	<LOD	<LOD	<LOD	<LOD	260	<LOD	12676	<LOD	1814	<LOD
X-105 (3-in)	2-Aug-12	10	261	1106	1412	<LOD	<LOD	<LOD	<LOD	467	<LOD	12377	<LOD	<LOD	<LOD
X-105 (4-5 in)	2-Aug-12	11	433	2184	1730	<LOD	<LOD	<LOD	<LOD	243	<LOD	13106	<LOD	<LOD	<LOD
X-106 (Below Sod)	2-Aug-12	12	162	241	973	<LOD	<LOD	<LOD	<LOD	400	<LOD	11636	<LOD	1473	<LOD
X-106 (3-in)	2-Aug-12	13	37	273	295	<LOD	<LOD	<LOD	<LOD	253	<LOD	12295	<LOD	2136	261
X-106 (4-in)	2-Aug-12	14	316	997	1371	<LOD	<LOD	<LOD	<LOD	300	<LOD	12885	<LOD	2158	386
X-107 (Below Sod)	2-Aug-12	15	177	683	1354	<LOD	<LOD	<LOD	<LOD	186	<LOD	6478	<LOD	<LOD	<LOD
X-107 (3-in)	2-Aug-12	16	291	1373	1314	<LOD	<LOD	<LOD	<LOD	216	<LOD	12246	<LOD	1368	322
X-108 (Below Sod)	2-Aug-12	17	58	152	204	<LOD	<LOD	<LOD	<LOD	170	<LOD	10208	<LOD	1528	<LOD
X-108 (4-in)	2-Aug-12	18	73	200	273	<LOD	<LOD	<LOD	<LOD	238	<LOD	11195	<LOD	2173	272
X-109 (Below Sod)	2-Aug-12	19	253	1063	1565	<LOD	<LOD	<LOD	<LOD	328	<LOD	8903	<LOD	<LOD	<LOD
X-109 (3-in)	2-Aug-12	20	616	1469	1666	<LOD	<LOD	<LOD	<LOD	310	<LOD	18136	<LOD	<LOD	<LOD
X-109 (4-in)	2-Aug-12	21	407	1102	1418	<LOD	<LOD	<LOD	<LOD	257	<LOD	12386	<LOD	1599	<LOD
X-110 (Below Sod)	2-Aug-12	22	193	695	801	<LOD	<LOD	<LOD	<LOD	264	<LOD	9588	<LOD	<LOD	280
X-110 (4-in)	2-Aug-12	23	83	206	273	<LOD	<LOD	<LOD	<LOD	227	<LOD	13270	<LOD	2040	226
X-111 (Below Sod)	2-Aug-12	24	313	725	1835	<LOD	<LOD	<LOD	<LOD	230	<LOD	12759	<LOD	<LOD	224
X-111 (3-in)	2-Aug-12	25	137	319	1060	<LOD	<LOD	<LOD	<LOD	263	<LOD	15990	<LOD	2592	263
X-112 (Below Sod)	2-Aug-12	26	163	148	1039	<LOD	<LOD	<LOD	<LOD	548	<LOD	25779	<LOD	<LOD	380
X-112 (3-in)	2-Aug-12	27	233	220	917	51	<LOD	<LOD	<LOD	1473	<LOD	59986	<LOD	<LOD	874
X-112 (6-in)	2-Aug-12	28	255	238	800	<LOD	<LOD	<LOD	<LOD	1294	<LOD	53942	<LOD	1832	672

< LOD - Less than Level of Detection

Bold - Significantly Above Background

Outlined - Above Removal Management Level

